To be Read on Tuesday. Nov. 17, 1874.
At the Grosvenor Hotel, at 8.30 p.m.

[PRIVATE.

ON THE DOCTRINE OF HUMAN AUTOMATISM.

In making a Geodetic survey of a country, the first step is to *measure a base;* from each end of this base, the angle is measured between the other and some suitable point at a distance from both of them; and from such measurement those two distances, forming the other two sides of the triangle, can be computed. Taking either of these sides as a base, a new triangle may be erected upon it by the same means; and in this manner, the area to be surveyed is covered with a net-work of triangles, by which the determination is made of the position of a sufficient number of fixed points to enable the intervening spaces to be measured by reference to them. But no such survey can be regarded as complete, until its correctness has been tested by the actual measurement of a *base of verification;* which is done by so arranging the triangulation, that it may come to an end with a triangle having a base of a few miles running across a level area. If the *measured* length of this base is found to correspond with the *computed* length, within a certain small range of unavoidable error (say an inch to a mile), the accuracy of the whole triangulation,—that is to say, the truth of all the positions it is supposed to have determined,—may be assumed. But if there should be any serious discrepancy between the length of the *computed* and that of the measured base, the surveyor knows that there *must* be an error *somewhere,* and sets himself to discover it.

That such a method of verification should be put in practice, where possible, in the case of every Scientific conclusion, and that no scientific doctrine can be regarded as finally established until its result shall have been thus tested, will, I think, be generally admitted. But the question arises in every department of Science, *what is to be accepted as verification;* and my position is, that the most certain test to which we can subject the truth of any scientific conclusion, is that obtained by extending our "triangulation" (so to speak) in such a manner as to bring it back to a measurable "base,"—that

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is to say, to reason out the conclusion to such an issue, as may be brought into direct comparison with some ultimate fact, not of our individual Consciousness alone, but of what is ascertained by a *comparison of experiences* to be the common consciousness of Mankind.

A *perfect* verification is only attainable in the case of Sciences that have as their basis those *ideal conceptions* of extreme simplicity, which the common consciousness of mankind agrees to accept as "necessary truths." For every train of scientific reasoning which is based on Sense-perceptions, has in it an element (sometimes a very large one) of uncertainty, which may be enormously increased as our "triangulation" proceeds, and which can, for the most part, be tested only through other Sense-perceptions, which may have in them a corresponding liability to error. When, however, we start from our purely abstract definitions of a point, a line, and a surface, and from such axiomatic data as that "if equals be added to equals the sums will be equal," we can work round our triangulation to a base of verification of corresponding simplicity; and if our Geometrical reasoning should land us in the conclusion that when equals are added to equals the sums are *un*equal, we know that there must be an error somewhere. So in an Arithmetical or Algebraical computation, we "prove" the correctness of our result by working our computation round to some "base of verification;" and if we should find that it brings out anything else than *perfect equality* (as in the well-known algebraical quibble which proves 1 = 2), we know that there is a flaw in our reasoning.

I presume that the same test is applicable to those higher forms of Mathematical reasoning with which I am not myself conversant. I have heard that by a "dexterous manipulation of formulæ" almost anything may be proved; but however conclusive such a demonstration may appear, we refuse to accept its product, if it does not stand the test of comparison with "a base of verification," and we apply ourselves to the detection of the juggle by which it has been palmed upon us, —just as we try to find out the tricks of a conjuror, who *seems* to do what we *know* to be impossible.

Now, it seems to me that in the exposition of the doctrine of Human Automatism lately put forth by two of our members,[1] undue stress has been laid upon the supposed positiveness of the data and conclusiveness of the reasoning; whilst the importance of testing the results by appeal to the High Court of Consciousness has been undervalued. I desire in this inquiry to speak with every respect of the teaching of men of such distinguished ability, whom I am proud to number among my personal friends; but I look upon the consequences of any error in our conclusions upon this subject as so momentous, that before committing ourselves to their adoption we are bound to scrutinise them by every possible test. I must confess myself unable to share in Professor Huxley's indifference to the "logical consequences of his convictions," which he designates as "the scarecrows of fools and the beacons of wise men." I quite agree with him that "the only question which any wise man can ask himself, and which any honest man will ask himself, is whether a doctrine is true or false"; but the answer to that question, in the present case, seems to me so clearly to lie in the accordance or disaccordance of the "logical consequences" of the doctrine of Human Automatism with the ultimate facts of the common consciousness of Mankind, that I cannot regard the result of such comparison in any other light than as a verification or a disproof of that doctrine,—to be trusted, in either case, as implicitly as that of the comparison made by the Surveyor between his computed and his measured "base of verification."

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[1] Professor Huxley, in a Lecture at the Belfast Meeting of the British Association, published in the *Fortnightly Review* for November; and Professor Clifford, in a Lecture on "Body and Mind," delivered at St. George's Hall, November 1, 1874.

It is obvious that there must be a peculiar liability to error in Sciences whose basis lies in observations that may be interpreted in two or more different ways, and into whose intellectual construction *analogical probabilities* largely enter; and it would be easy to show that this is pre-eminently the case in the Biological sciences. I must confess to some astonishment, therefore, at the confidence with which the doctrine of Human Automatism has been announced as established on a secure Physiological basis; for that basis seems to me obviously unsound. When we attribute automatism to brutes, it is because their actions, and the conditions under which they are performed, correspond with those which we know to represent automatism in ourselves. And so, in affirming that the actions of a frog, after the division of his spinal cord, or the removal of his brain, do *not* indicate the persistence of sensation and voluntary power,—we interpret them by the analogy of the reflex actions which we *know* to be performed in Man by the instrumentality of his spinal cord, without consciousness or volition. But, on the other hand, to say that because a decapitated frog, or a human being that is suffering under a partial deprivation of his faculties, automatically performs some action which the normal Man executes by his will, therefore the normal man, acting volitionally, is equally with them an automaton, seems to me a wrong application of analogical reasoning, since it contradicts our own consciousness of the different sources of the two actions. When I sneeze, I act automatically, without any conception of a purpose, or intention to carry it out. When I do a piece of delicate microscopic dissection, I act volitionally; every movement being directed by my will to accomplish a preconceived purpose, and requiring the guidance of my visual sense, augmented by optical aid. I cannot sneeze volitionally; and I can believe it quite possible (though I have no experience of the fact) that sneezing can be excited without consciousness of the stimulus that excites it. But I cannot conceive that a piece of delicate handiwork—the painting of a picture for example—can be executed for the first time without distinct volitional direction, under the guidance of the sight both of the instrument and of the object.

Professor Huxley admits that in the case of a pin run into our flesh, " we have as much reason for regarding the mode of motion of the nervous system as the cause of the state of consciousness, as we have for regarding any event as the cause of another." But he sees no evidence that (conversely) any state of consciousness can cause those molecular changes which give rise to motion; affirming that as " the consciousness of brutes would appear to be related to their body simply as a collateral product of its working, and to be as completely without any power of modifying that working as the steam-whistle which accompanies the work of a locomotive engine is without influence upon its machinery," so " in men, as in brutes, there is no proof that any state of consciousness is the cause of change in the motion of the matter of our organism." . . . . . " Our mental conditions," he continues, " are simply the symbols in consciousness of the changes which take place automatically in the organism; and, to take an extreme illustration, the feeling we call 'volition' is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act."

Professor Clifford, with (as appears to me) more consistency, denies *any* relation of causation between corporeal and mental states; considering the relation of the two orders of phenomena as one of *concomitance* only. "The body," he says, "is to be regarded as an *automaton;* the mind as a stream of feelings running parallel to, and simultaneous with, a part of its motion."

Neither of my friends, I think, can object to the following application of his general doctrine to a particular case :—

When Professor Huxley gave his lecture at Belfast, his bodily movements were the consequences, not of his antecedent mental states, but of certain molecular changes in his brain, which would have gone on all the same had his volition been annihilated (the steam-whistle turned off). I, having my tympanum affected by the sonorous vibrations in the air produced by the movements of Professor Huxley's vocal apparatus, experienced a mode of motion in my nervous system, which (according to Professor Huxley) was the cause of a certain state of consciousness in *my* mind, that more or less accurately represented what was passing in *his.* But when I got up to second the vote of thanks to Professor Huxley for his very able lecture, I was not moved thereto by any desire either of my own or of those who had requested me to do so, for my conscious will could not produce any action on my body ; but I did it because the request which had been made to me had excited a series of molecular changes in my brain, of which my bodily action was the automatic response. By excluding Mind from any share in the causation of bodily states, Professor Huxley seems to me, *in effect*, to say that I should have got up and spoken in precisely the same words, if I had neither heard nor understood his lecture, nor been conscious of the meaning of the message sent to me, provided that my brain and nerves had been in proper working order ;[1] the difference between himself and Professor Clifford lying simply in this, that Professor Huxley might say that if my brain had been in proper working order, I *must* have heard and understood, though my hearing and understanding were in no sense the cause of my subsequent action ; whilst Professor Clifford, affirming that mental and bodily states have only a relation of parallelism, removes all difficulty on that score. And it is thus distinctly affirmed that the members of the British Association did not come together on that particular evening to hear Professor Huxley's lecture, since no desire or will on their parts had anything to do with putting their bodies in motion to ride or walk to Ulster Hall; but that they were moved to do so by certain states of brain, which had no dependence upon what they had previously heard or known of Professor Huxley, or on their expectation of an intellectual treat in listening to him, but was simply a consequence of the molecular action excited through the retina of each by the image of the placard announcing the lecture, or through his tympanum by a vocal communication; the respondent action being produced by a mode of motion in the brain, which was determined in the case of each individual, not by his mental appreciation of Professor Huxley, or by curiosity to know what so distinguished a man had to say on a subject of so much interest, but by the antecedent molecular changes of which that appreciation and that curiosity were simply concomitants, and which would have produced the same results if they had been absent.

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[1] If I am wrong in this interpretation (which has already been publicly assigned to it by Mr. Spalding), I shall, of course, be glad to be set right. But in any case, this is the teaching of Professor Clifford.

As what is true of this particular incident must be equally true of the general stream of Human Life, it follows that this stream would flow on exactly as it does if we had no consciousness at all of what we are about; for example, that the actions and reactions of our "ideagenous molecules" would do all the intellectual work of the Philosopher, even if they never generated ideas; that he would write and print its results, not from any intention that they should be read and understood by thinking minds, but because certain actions of his brain alone produce respondent movements of his body; and that, in like manner, the master-pieces of genius—the works of the Poet, the Artist, and the Musician—would have none the less been produced, if the "symbols in consciousness" of the molecular changes in their brains had been never evolved.

Had it not been for the gravity of the occasions on which the Lectures of Professors Huxley and Clifford were delivered, I could almost fancy that my friends had been amusing themselves at the expense of their auditors, and were laughing in their sleeves at finding their *jeux d'esprit* made a matter of serious discussion. But, as I am compelled to believe that they meant what they said, I feel bound to subject their doctrines to the test of discussion, because, if I were not to enter my protest against them, I might be supposed to accept them as the legitimate consequences of doctrines I have myself advocated. For I have taught, not only that a large part of our Mental as of our Bodily activity is *automatic* in its character, proceeding without being either sustained or directed by the will, but that such automatic action may go on without consciousness, so as to evolve products which must be accounted mental, and to express itself in bodily actions conformable to such results.

The fundamental difference between the doctrine I advocate and that of the pure Automatists lies in this, that I look upon mental states as *causes* of bodily changes: holding that when I *will* to lift a weight, my volitional effort is the cause of that molecular change in my nervous system, which, by its action on the muscular apparatus, calls forth the force which overcomes that of gravity; that when I am moved to laughter by some ludicrous sight, sound, or idea, the mental emotion is the cause (through the same channel) of the "shaking of my sides," overcoming—it may be—a strong volitional effort to restrain it; and that, in like manner, volitional, emotional, or other states of mind have a modifying influence upon those modes of motion of the brain itself which determine subsequent mental states; its very *automatism* being thus, like acquired bodily habits, the consequence of previous *volitional* direction or permission.

I fail to perceive on what ground a distinct volitional effort, that is, one directed to the attainment of a proportionate result definitely conceived by the mind, can be regarded as other than the *cause* of such result, by any one who admits that the sticking a pin into his flesh is the cause of his feeling its prick. The relation of unconditional sequence, to which Professor Huxley would limit causality, is surely as complete in the one case as in the other. And to myself, who hold with those who recognise in all causation a *force* which really does the work, the very type of such force—the basis of our conception of it—is furnished by our consciousness of volitional effort.

I cannot myself see how the reaction of Mind upon Body can be denied by anyone who admits the action of Body upon Mind. The difficulty is to conceive of a bridge by which the passage can be made at all; but when a bridge *has* been built, which serves for passengers to cross in one direction, I do not see why it should not be crossed in the other. If I understand Professor Clifford rightly, there is no passage at all; but a set of unconscious automata are acting their respective *rôles* on one side, every one of them having its ghost on the other, which does just the same things according to a "pre-established harmony,"—a notion which Professor

Huxley expressly repudiates. According to the latter, the automata go over the bridge, and stir up their respective ghosts to sensation, emotion, or intellection, to passionate effort or the calm exertion of an energetic will; but no one of their mental states reacts on the automata, which perform on the other side of the bridge the actions of which those states are "symbolical";—our belief that our bodily actions are consequences of the mental states which they seem to us to express, being all a mistake.

To me it seems as certain that (to use the convenient terms of Xavier de Maistre) my *âme* influences the actions of my *bête*, as that my *bête* makes my *âme* cognisant of what is going on in the outer world. The *bête* often tries to go his own way, and sometimes gets the better of the *âme;* but the more constantly and judiciously the *âme* endeavours to subdue her *bête* to her uses, the easier she finds it to direct him; and as the well-trained *bête* will automatically go along any road he has been habituated to travel, while the *âme* is asleep or immersed in thought; so the "unconscious cerebration" which I advocate is the highest expression of the automatism that has been originally constructed under the direction of the Will.

But those who concede that the Will *is* a force that acts on the body, so that mental action may form part of the chain of sequences which connects a sensory impression with a bodily movement, may still hold the doctrine of Human Automatism in its most unmitigated form; since it may be affirmed that the Will is merely the last link in a chain of causation, consisting of *mental* antecedents and consequents, which link, by its connection with the body, moves it to action. This position, which is at present sustained by many eminent Psychologists, I must not now attempt to discuss at any length. But if it is to be accepted, it seems to me clear that the words *right* and *wrong* can have no other sense, when applied to human action, than they have when applied to a watch. If I say that my watch goes "right," I do not assign to it any moral excellence, but merely mean that it keeps time well. And if I say that it goes "wrong," I do not speak of it as an object of blame, but merely mean that it wants regulating. In the same manner, we cannot assign any moral quality to brutes that simply act automatically. If it would be absurd for me to find fault with a wasp that I have provoked to sting me, or to commend a bee that stores up honey to my use, I must be equally inconsistent in blaming a man for any injury his selfish conduct may do me, or in thanking him for any act of self-sacrifice that benefits me. The distinguishing character of the man who has most completely brought his *bête* under subjection to his *âme*, and whose *âme* is constantly acting upon the highest and purest motives, may be typified, on this hypothesis, by that of a very perfect chronometer, furnished with a compensating balance; whilst the ordinary man is like a common watch, whose going can only be kept right under a change of temperature by external interference.

I fully admit the cogency of the logical arguments by which this position may be sustained; but they do not make it true to my own moral consciousness, or to that of mankind generally. For the words "right" and "wrong," as used by everybody, can mean nothing more in regard to human conduct than they do in regard to the going of a watch, or the actions of a bee or a wasp, unless it be that the human being has a power of *choice*, such as is possessed by neither of these. Professor Huxley's French soldier, in certain abnormal phases of his existence, is as much an automaton as the watch, the bee, or the wasp; and could not be held more "accountable" than they are for anything he may do in those phases. But if he is equally an automaton at other times, he has no more power to do the "right" or to avoid the "wrong" in his normal, than in his abnormal phases; and if *he* cannot be held morally accountable, neither can any one of us.

This consequence of the doctrine of Human Automatism was fully admitted by John S. Mill, with whom I used to discuss it thirty years ago. And it was so repugnant to his moral sense, that he tried to get rid of it by what I believe most will agree with me in regarding as a logically inconsistent evasion.

A distinguished Equity Judge, who expressed to me a few days since his dissent from the doctrine of the "self-determining" power of the Will, acknowledged, when I pushed home the consequences of pure Automatism, that though, having been brought up in implicit faith in the Hartleian philosophy, and seeing no logical way of escape from it, he *believed* it intellectually, yet he always *acted on* the doctrine that we *have* that free choice which alone can give moral significance to the terms "right" and "wrong."

And Professor Clifford, at the conclusion of his lecture, told his audience that the doctrine he had expounded to them as to the relation of mind and body, being (as he was convinced) the true scienti fic view of the case, it would be *right* for them to open their minds to receive it, and *wrong* for them to close their minds to reject it. What was the sense in which he used those words, his audience (*ex hypothesi*) having no choice in the matter, it is not for me to say. But to myself it seems that the Moral Consciousness of Mankind in regard to *right*, as distinguished from *wrong*,—however wide may be the diversity of judgment as to *what* is right and *what* is wrong,—affords the "base of verification" by which the truth of the doctrine of Human Automatism, in any of its forms, may be most certainly tested.

Members intending to join the Dinner (at 7 o'clock) are requested to write to that effect to "Mr. James Knowles, *The Hollies, Clapham Common, S.W."*

Any Member unavoidably absent from the Meeting can, if he think proper, make written remarks on the foregoing Paper, and forward them to the Secretary. No such remarks should exceed ten minutes in length of delivery vivâ voce.

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